

PROGRAMMABLE CONDUCTOR MEMORY CELL STRUCTURE AND METHOD THEREFOR

Abstract of the Disclosure

In programmable conductor memory cells, metal ions precipitate out of a glass electrolyte element in response to an applied electric field in one direction only, causing a conductive pathway to grow from cathode to anode. The amount of conductive pathway growth, and therefore the programming, depends, in part, on the availability of metal ions. It is important that the metal ions come only from the solid solution of the memory cell body. If additional metal ions are supplied from other sources, such as the sidewall edge at the anode interface, the amount of metal ions may not be directly related to the strength of the electric field, and the programming will not respond consistently from cell to cell. The embodiments described herein provide new and novel structures that block interface diffusion paths for metal ions, leaving diffusion from the bulk glass electrolyte as the only supply of metal ions for conductive pathway formation.